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## CHOOSING A FARM POWER

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**If installing a Gasoline Engine get one of sufficient power to properly perform the work to be done. In an economical engine a good mixing, a good compression and a good spark are absolutely essential**

**I**n the daily round and common task of the farmer much of the hard routine work now done by manual labour could be as efficiently and economically performed by some mechanical contrivance as by sheer brute force of the hired man. Now that even high price labour is scarce and extremely difficult to secure, every thoughtful farmer is contemplating how best to meet the situation so as to release somewhat the tension and strain of the strenuous life of the present day on the farm. Naturally his thoughts turn in the direction of installing some mechanical equipment to perform the heavy hum-drum work and the question that troubles him sorely is what is the best "rig" to install to advantage, not only at the pump or feed grinder but also at the wash-tub, churn and separator. To the average farmer who is forced by circumstances to contemplate something seriously along this line and who has had comparatively little or no opportunity of seeing the different kinds of motive power and the methods generally adopted to apply them to all sorts of farm operations, the problem of selecting the right mechanical outfit which will meet all his requirements most satisfactorily is a vital and a perplexing one.

There are two types of engines on the market, the two-stroke cycle and the four-stroke cycle. The operations taking place in the cylinder to produce continuous power are similar in principle and character in each type and effect the same results but the method of control is different. In a two-cycle engine there is an impulse of explosion for every second stroke of the piston while the four-cycle has four single strokes of the piston for every explosion. It is evident that given the same size, weight and strength of engine parts, the engine operating with the greatest proportion of working strokes will develop the most power so that the two-cycle engine has a decided advantage on this score but owing to its later development, its various mechanical difficulties yet to be overcome, it has not met with success like the four-cycle principle which better meets the requirements of power users, and manufacturers do not care to leave a ready market to perfect the two-cycle problem.

## CONSIDER THE HORSE POWER OF AN ENGINE

One of the weighty points for consideration is the horse power of the engine most suitable for farm work, but different localities are engaged in widely different kinds of farming. It is therefore impossible to arbitrarily say that a certain horse power will adequately meet all demands, say of a hundred-acre farm. The work to be done by the engine of course depends entirely upon the size and capacity of the machines to be driven and since in the diversity of farming practised a very wide range of machinery exists, it is necessary in order to help the farming community at

To drive the various small farm machines such as a cream separator with a capacity of from 600 to 700 pounds of milk per hour requires 1-3 horse-power. A pump lifting about 20 gallons of water per minute from a well 50 feet deep would need about 1-2 horse power based on a pump efficiency of 50 per cent. Churns, washing machines, fanning mills, grindstones, each requires about 1-10 horse power to drive them under load. A bone-cutter requires about 1-4 horse power if not crowded. A hand drill, depending upon size of the holes drilled and the speed, would need from 1-10 to 1-3 horse power. These machines include practically all of the smaller machines in use on one or the other of the various kinds of farms. The total power required for all of them amounts to 1½ horse power. The feed grinder will require from 1 to 1½ horse-power, depending of course upon the capacity, speed of the mill, condition and kind of grain, and the fineness desired.

A saw rig could be operated by a 2 horse power, although with a 3 horse power a great deal more work can be accomplished in a given time. Assuming then that a farmer wishes to purchase an engine to run all these machines we find that the horse power of the motor, according to our formula, should be as follows:

The largest machine, the saw, requires 2 horse power, the grinder and the others 1½ horse power and small machines 1¼ horse power. Total—3 horse power, 25 per cent. of which is ¾ horse power. Then 2 horse power plus ¾ horse power equals 2½ horse power, the amount at which the engine should be rated. This 3 horse power engine

would develop sufficient energy to drive the saw at limited capacity and many of the smaller machines simultaneously. Many farmers find that a 4 horse power engine is an excellent size, for besides operating all the small machines enumerated it will in addition drive a feed mill with a capacity of about 20 bushels per hour. Usually this takes about 3 horse power to accomplish the work.

## THE PLACE FOR THE LARGE ENGINES

The large engine, however, has its place where heavy class of work like threshing, filling silos, etc., has to be done. But the question arises has the average farmer enough of this work to justify him in investing in a large engine or would it be cheaper to hire some one making a specialty of that class of work to do it. Should the work warrant a large engine, have it large enough to handle the work successfully, indeed it should be so large that it would be good economy to have two—a small one which could be moved from

## Our Efforts Appreciated

Cumby, Ont., Sept. 18th, 1908

Editor, The Canadian Dairyman and Farming World,

Dear Sir,

*I am pleased to read in the daily press that the Postmaster-General is to give Rural Free Delivery a fair trial. I think that the very clever series of articles that appeared in The Canadian Dairyman and Farming World on Rural Free Delivery were largely instrumental in bringing about this state of affairs, so beneficial to our farmer friends.*

*(Signed) Charles Clark,  
Publisher, "Cumber Herald"*

large to have some basis on which to determine to one's own satisfaction what horse power best to buy. It is by no means economy to have a rated horse power very much higher than is actually needed to perform the work in hand. Of course there is no engine built that will last as long if it is run to the limit of its capacity all the time. There should be a reasonable allowance. A gasoline engine reaches its maximum horsepower when the governor is not acting. To determine the horse-power required a fair basis would be that the horse-power of the motor should be equal to that required by the largest machine driven, plus 25 to 50 per cent. of the power necessary to drive the other machines—25 per cent. when the machines need not be driven at the same time and 50 per cent. when several machines are to be driven simultaneously with the largest one. This rule can be successfully applied to average farm conditions.